Crossons-Longview Forest Restoration Project Environmental Assessment

Heritage Specialist Report V3

South Platte Ranger District
Pike National Forest
September 2015

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1. INTRODUCTION

The purpose of the Crossons-Longview Forest Restoration Project is to restore sustainable forest conditions that are resilient to fire, insects, and diseases, while providing for diverse wildlife habitats, recreational opportunities, and sustainable watershed conditions. The specific purposes of this project are:

- To reduce the potential of large-scale, high-intensity wildfire with uncontrollable fire behavior, such as active crown fire.
- To reduce the potential that a wildfire would negatively affect public water supplies from subsequent severe flooding and sedimentation.
- To improve forest health, vigor, and resilience to large-scale fire, insects and disease.
- To enhance wildlife habitat through the reduction of the potential for high-intensity wildfires, enhancement of shrublands and aspen habitat, and Pawnee montane skipper habitat.

2. PROJECT DESCRIPTION

The South Platte Ranger District of the Pike and San Isabel National Forest proposes to treat 9,574 acres within the 22,729 acre Crossons-Longview Project Area to move the montane forest ecosystem towards historic conditions. The proposed actions would alter forest stand and understory conditions and would be accomplished by a combination of mechanical harvesting and hand treatment. Specific actions would be dependent on site-specific conditions and the vegetation type; however, actions would include thinning, created openings, and prescribed burning. Professional judgment would be used, within guidelines identified in the Environmental Assessment and taking into consideration the terrain and vegetative type, to determine which one or combination of treatments are most appropriate for individual treatment sites. Approximately 55 percent of the treatment areas are located within 0.5 miles of existing roads, with 33 percent of those areas treated by hand due to slopes between 35-60 percent. Approximately 61 percent of the treatment areas lie on slopes of 0-35 percent and would be considered appropriate for treatment with traditional harvesting equipment and commercial product removal. The treatments on slopes between 35-60 percent would likely be hand treatments. Where possible, vegetation treatments would take into consideration previously treated areas and/or past burned areas in order to increase the overall landscape benefit.

The Proposed Action does not include the establishment of any new system roads, however, approximately 10 miles of temporary roads would be used to access the proposed action treatment areas. The target vegetation areas are identified on Table 1 and Figure 1. It is expected that project activities would take approximately 10 years to treat the proposed treatment area.

Table 1. Crossons-Longview Alternative B -Proposed Treatment Areas

Vegetation Type	Area (acres)	Percentage
Xeric Ponderosa pine	4,581	49%
Mesic Ponderosa pine	3,684	38%
Mixed Conifer	603	6%
Lodgepole pine	557	6%
Aspen	121	1%
Shrubs	28	<1%
Total	9,574	

Alternative C was developed in response to a concern that increasing access through the use of temporary roads would cause some negative effects. Alternative C proposes that minimal temporary roads will be built to accomplish the project's purpose and need. Temporary roads would be limited to short segments needed to accomplish the treatments, such as jump-up spurs. Relying solely on the existing road network will lessen the ability for product removal and will shift treatment methods toward more mastication and hand thinning. This alternative seeks to balance forest restoration with concerns about expanding the existing road network.

Because minimal temporary roads will be constructed, all treatment must occur off of existing roads, limiting the area that can be treated. It is assumed that all treatment will occur within 0.5 miles of existing roads, reducing the available treatment area to 6,325 acres. Table 2 presents the proposed treatment area by vegetation type for Alternative C.

Table 2. Crossons-Longview Alternative C - Proposed Treatment Areas

Vegetation Type	Area (acres)	Percentage
Xeric Ponderosa pine	2,919	46%
Mesic Ponderosa pine	2,500	40%
Mixed Conifer	422	7%
Lodgepole pine	354	6%
Aspen	115	1%
Shrubs	16	<1%
Total	6,325	

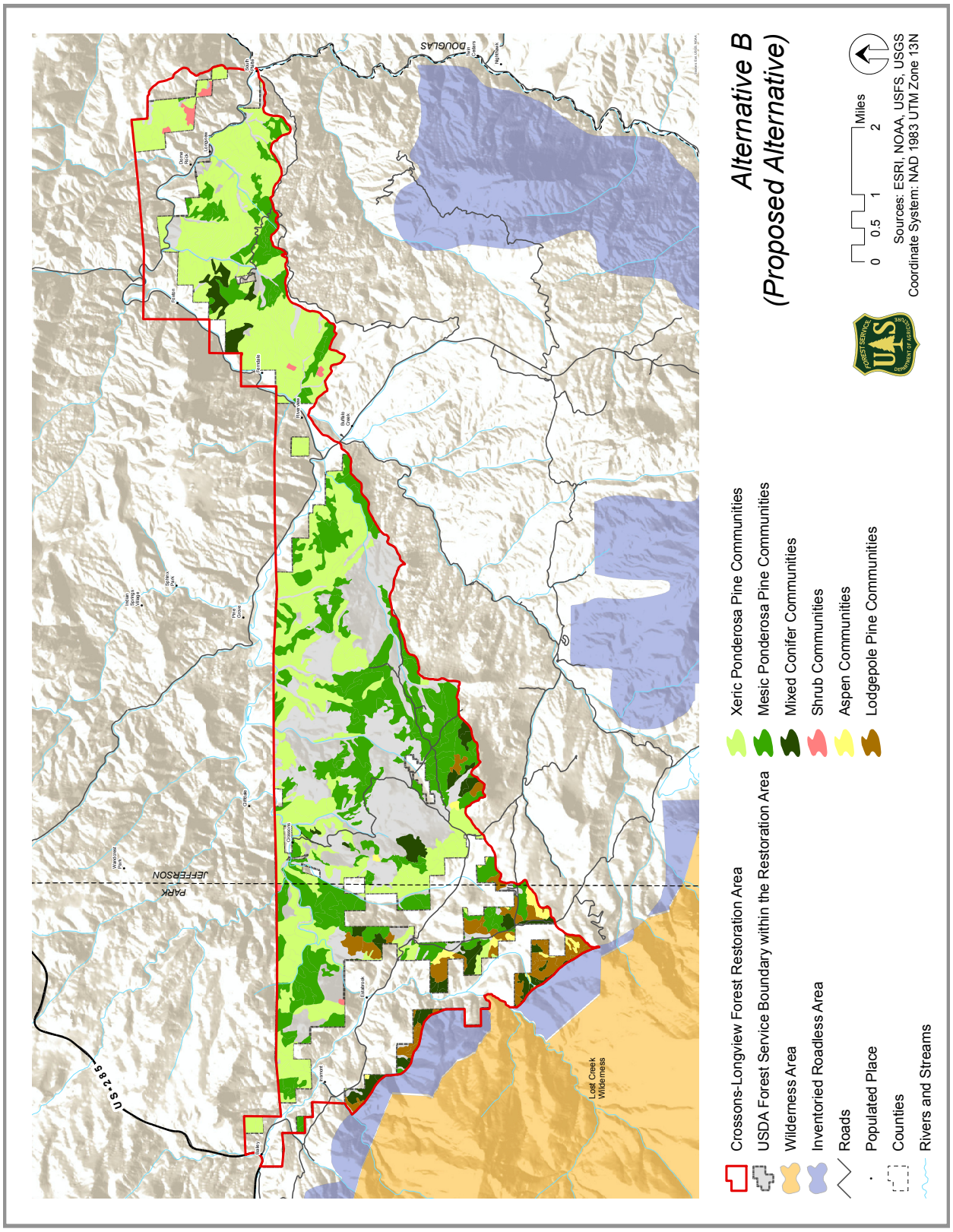

Figure 1. Crossons-Longview Treatment Area Map

3. REGULATORY FRAMEWORK

Heritage resources are districts, sites, buildings, structures, and objects that contain evidence of past human activities. The National Historic Preservation Act (NHPA) of 1966 established the federal government's policy and programs on historic preservation, including the establishment of the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on all historic properties. The Colorado Office of Archaeology and Historic Preservation (OAHP), the Office of the Colorado State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) are the state and federal agencies responsible for overseeing the management and preservation of heritage resources in compliance with the NHPA.

3.1 NATIONAL FOREST MANAGEMENT ACT

The Land and Resource Management Plan for the Pike and San Isabel National Forests; Comanche and Cimarron National Grass Lands (USDA Forest Service 1984), as amended, provides the framework to guide the day-to-day resource management operations of the Pike-San Isabel National Forests and subsequent land and resource management decisions made during project planning. The 1976 National Forest Management Act (NFMA) requires that site-specific project decisions must be consistent with the Forest Plan. Forest Plan goals and objectives guide the identification and selection of potential agency projects. The determination of whether or not an individual project is consistent with the Forest Plan is based on whether or not the project adheres to forest-wide and management area standards.

The Forest Plan directs that the Forest protect, find an adaptive use for, or interpret all cultural resources on National Forest System (NFS) lands that are listed on the National Register of Historic Places (NRHP), the National Register of Historic Landmarks, or that have been determined to be eligible for the National Register of Historic Places (NRHP). Also, the Forest Plan (USDA Forest Service 1984, Page III-17) directs:

- Nominate or recommend cultural resource sites to the National Register of Historic Places (NRHP) by 1990 in the following priority:
    - Sites representing multiple themes;
    - Sites representing themes which are not currently on the National Register within the State
    - Sites representing themes which are currently represented by single sites.

- Protect and foster public use and enjoyment of cultural resources:
- Complete cultural resources surveys prior to any ground-disturbing project;
- Avoid disturbance of known cultural resources until evaluated and determined not significant;
- Collect and record information from sites where there is no other way to protect the properties;
- Issue antiquities permits to qualifying academic institutions or other organizations for the study and research of sites.

4. Analysis Methods

The identification process for cultural properties potentially affected by the Crossons-Longview Environmental Assessment included a file search to locate previously known properties and previously conducted field studies. No project specific field surveys have yet been conducted to identify all the potentially affected cultural resources because specific treatment areas would be identified during project implementation. At that time, surveys, site eligibilities, effects determinations and mitigation and protection measures would be undertaken. Mitigation and protection measures would be developed in consultation with the SHPO prior to implementation of any activities in any given treatment area.

5. Existing Conditions

The Crossons-Longview Project Area includes both documented prehistoric and historic sites. The area was a transportation corridor used by prehistoric people for habitation and hunting. Historic use includes homesteading, lumbering, ranching, mining, settlement, transportation, communication, recreation, and tourism. A site's eligibility status is based on content in terms of documented archeological deposits and the potentially valuable information they contain, historic engineering attributes, and/or association with important historic events or persons.

Previous heritage resource investigations conducted in the Crossons-Longview Project Area between 1952 and 2014 have identified and recorded 162 historic and prehistoric sites (see detailed list of sites in administrative record). Table 3 summarizes the results of these surveys. The prior investigations and documentation include numerous surveys and reports that were completed for wildfire salvage, fuels management, timber sales, utilities and infrastructure projects, the proposed Two Forks Dam and other water supply projects, watershed improvements, etc. Numerous surveys were also conducted solely to survey for cultural resources of the area,

in particular as surveys for inclusion to the North Fork and Estabrook Historic Districts. Other investigations were completed to further knowledge of known or suspected cultural properties. Many of the properties have been surveyed more than one time.

Table 3. Cultural Survey Results (1952 - 2014) in Crossons-Longview Project Area[1,2]

Survey Result	Prehistoric Sites	Historic Sites	Total
Listed on National Register of Historic Places	0	5	5
Listed on Colorado State Register of Historic Places	0	1	1
Officially Eligible for Listing on NRHP	1	8	9
Field Eligible for Listing on NRHP	3	1	4
Added to North Fork or Estabrook Historic Districts	0	17	17
Officially not eligible for listing	3	17	20
Within NR District/Field not eligible for listing	0	33	33
Field not eligible for listing	4	32	36
Isolated Find/Field not eligible for listing	3	11	14
No eligibility call/no assessment or needs data	3	22	25
Total	17	147	164

The records for these previously identified sites were reviewed during the current analytical process to determine the types and number of sites found in the area, the significance of these sites as indicated by recommendation for entry into the National Register of Historic Places (NRHP), location and potential impacts due to activities proposed in the Project Area. A summary of the results of this review are presented in Table 3. Cultural resource surveys have documented 17 prehistoric sites of which 4 are officially eligible or determined in the field to be likely eligible for listing on the NRHP. There are no prehistoric sites that have been listed on

[1] The total number of sites are 162. Two sites reported both a prehistoric and historic resource and therefore the total number of resources listed on this table are 164.

[2] Eight of the sites that did not have an eligibility call, assessment or needs data were last surveyed prior to 1985. Three of these are prehistoric sites and five are historic sites.

NRHP in the Project Area. Surveys have also documented 147 historic properties. Of these, five have been listed on the NRHP An additional 9 are either officially eligible or determined in the field to be likely eligible for listing. An additional site has been listed as a Local Landmark on the State of Colorado Register of Historic Places although it was determined to be not eligible for the NRHP. Properties listed in the NRHP are automatically placed in the Colorado State Register. Sites may also be nominated separately to the Colorado State Register without inclusion in the National Register.

It should be noted that surveys conducted prior to 1985, when field methods could be described as "reconnaissance" by one or two individuals, are not considered as adequate cultural resource surveys. Standards for survey coverage were upgraded according to new Colorado State Office of Archaeology and Historic Preservation (OAHP) in that year, and since 1985 all field surveys employ systematic and thorough pedestrian inspection of most, if not all, of individual project areas. Of the 164 sites surveyed between 1952 and 2014, 8 (5 percent) were surveyed prior to 1985 and would require additional surveys prior to project implementation. These sites include five historic and three pre-historic sites. Of these sites, one historic site was noted as "field not eligible" for listing. The remaining five sites did not have any assessment or eligibility determination or they are indicated as "needs data."

5.1 Prehistoric Evidence

The records for the Project Area document 17 prehistoric sites of which only three are considered "field eligible" for listing and one is listed as officially eligible for listing. Three of the 17 sites were surveyed prior to 1985 and would require additional surveys prior to project implementation. There are no prehistoric sites that are listed on NRHP. The sites eligible for listing include lithic scatter, flakes, chipped stone concentration as typically associated with trash scatter and camps.

"Prehistoric" properties refer to sites with materials and items common to Native American cultures of Colorado. The use of these sites usually date before AD 1860 and may be much earlier (even several thousand years). A site's eligibility status is based on content in terms of documented archeological deposits and the potentially valuable information they contain.

Prehistoric sites are characterized generally as surface areas of stone tools, stone tool manufacturing debris, and in some cases, fire-cracked rock and ground stone for processing plant material. Prehistoric sites may include concentrations of finished tools and manufacturing debris; representing the remnants of temporary dwellings or outdoor activity areas. Prehistoric sites with these manifestations are usually interpreted as camps, or as resource collecting and processing areas. Most of the prehistoric properties recorded during previous investigations represent locations where small prehistoric social groups resided for a short period

while harvesting local resources, or some of the smaller sites may be areas where collected resources were processed or consumed. Processing sites either consist of formal shaped stone tools for processing meat or vegetable resources or ground stone for processing vegetable resources. It is not uncommon in the Pike National Forest for sites to have 50 to 100 or even more than one hundred 100 surface items.

In general, the prehistoric sites in the area appear to be surface in nature with shallow cultural deposit. It is thought that most of the prehistoric sites in the general area date to the late period (A.D. 1500-1870). However, items found in the Pike National Forest have been dated to much earlier periods, potentially as much as 2,000 years ago. It may be that some of the sites contain a mixture of deposits and materials representing the late period and an earlier use.

The prehistoric properties within the Crossons-Longview Project Area that are recommended eligible for inclusion and listing on the NRHP contain preserved archeological deposits that are storehouses of archeological and cultural information. The deposits are potential sources for addressing research problems in Colorado Mountain archaeology; for example, calculating the time span of prehistoric occupation in the southern Rocky Mountains, or reconstructing the subsistence patterns and other lifeways of indigenous social groups. Sites may be important as traditional cultural areas to the modern descendants of the Native American peoples who previously inhabited the eastern part of the Colorado mountains area. Some tribes have indicated in previous consultations that peeled or scarred trees, medicine / directional trees, and overhangs / crevices and rock shelters used by historic indigenous tribes are important cultural resources; they are regarded as such by the US Forest Service and are protected.

Other Native American sites that could be found in the area include culturally modified trees. Native American groups harvested the cambium layer of ponderosa pine (and possibly other conifers) by removing a strip of bark from these trees for use as a food and medicine and for ceremonial purposes. Similar trees, in other locations within the Pike-San Isabel National Forest have been recorded and the peeling scars dated. The date range for the scars falls within the decades of the early 19th century (AD 1820-1860). Native American groups also created prayer and directional trees. These trees (conifers) would have been saplings when manipulated by bending the tree to the ground and tied into place with straps secured by stakes. Directional trees point toward a sacred mountain, landscape or place while the prayer tree may also point a cardinal direction. The prayer trees would then be adorned with offerings to invoke good tidings. Both of these types of culturally modified trees are considered prehistoric sites and, if found, would be considered for recommendation for eligibility as a site listed on the NRHP.

Rock shelters could also be found in the Project Area. Rock shelters are typically found in granite outcrops adjacent to stream courses. These overhangs are ideal campsites for mobile groups harvesting and consuming

local resources during any season when the area was not impassible due to deep snow. Often, the depth of cultural deposits in these shelters is greater than one meter, suggesting a fairly lengthy period of use (perhaps several thousand years). Because the total volume of deposit for each shelter is substantial, these properties have the potential to contribute important data to our knowledge of prehistoric cultures in the eastern portion of montane Colorado.

Quarries are discrete areas where local bedrock outcrops provided raw materials suitable for the manufacture of flaked stone tools (the stone raw material must be suitable for creating sharp and durable edges or points). Quarry sites containing these outcrops plus evidence of prehistoric activity such as portable and usable fragments of the quarried raw material ("cores" or "blanks") and waste material ("debitage") remaining from on-site stone tool manufacture. Quarries are a site type that could be encountered within the Project Area.

5.2 Native American Consultation

Tribal governments and other officials of tribes, and cultural representatives with possible traditional ties to the area, or those tribes that have previously indicated interests, were contacted regarding the Crossons-Longview project by a scoping letter. No concerns about potential project effects have been raised from these groups regarding the proposed activities. The tribes that were contacted are;

- Apache Tribe of Oklahoma
- Eastern Shoshone Tribe (Wind River Reservation)
- Cheyenne and Arapaho Tribes of Oklahoma
- Comanche Nation of Oklahoma
- Jicarilla Apache Nation
- Kiowa Tribe of Oklahoma
- Northern Arapaho Tribe
- Northern Cheyenne Tribe
- Southern Ute Indian Tribe
- Ute Mountain Ute Tribe
- Ute Indian Tribe (Uintah & Ouray Reservation)

5.3 HISTORIC EVIDENCE

Historic properties refer to sites with materials and items common to European immigrant cultures of the Western Frontier. Generally, in the Pike National Forest, these properties date after 1860. The records for the Project Area document 147 historic sites. Five of the 147 sites were surveyed prior to 1985 and,would require additional surveys prior to project implementation.

Five of the surveyed sites are listed on the NRHP and one is listed as a Local Landmark on the State of Colorado Register of Historic Properties. Included in the five sites listed on the NRHP are two historic districts and one district expansion; the North Fork Historic District, the North Fork Historic District Expansion and the Estabrook Historic District. The other two listed sites include a single dwelling and a department store. The site listed on the State of Colorado Register of Historic Places is a single dwelling.

There are additionally eight sites considered officially eligible for listing and one considered field eligible for listing. Most of these sites are structures that contribute to the designated historic districts. Additional resources include a railroad grade and an historic bridge. Additionally, there are 17 structures that were included in the North Fork Historic District expansion.

5.2.1 North Fork Historic District (Site Number 74000586)[3,4]

The North Fork Historic District, listed on the National Register of Historic Places in 1974, runs through the Project Area Boundaries. This Historic District is located in south Jefferson County, southeast of Conifer. The two primary access routes into the district are Foxton Road from US 285, just west of Conifer, and County Road 126 from US 285 at Pine Junction. The historic district follows the North Fork of the South Platte River and is approximately 13 miles in length, from the North Fork's junction with the South Platte River to the town of Pine Grove. Field surveys conduction from 2004 to 2007 added 17 historic properties located in the Crossons-Longview Project Area to the Historic District as reflected in Table 1.

The North Fork Historic District includes several communities associated with the development of the Denver, South Park and Pacific Railroad's route through Platte Canyon during the 1870s to serve the mining areas to the west. The District's past is similar to that of many communities in the mountains of Colorado and the American West from the 1870s to the middle of the 20th century. The district lies along a river corridor flowing out of mountains that contain precious metals. As settlement spread along the corridor, so did the growth of other

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[3] http://www.historycolorado.org/archaeologists/jefferson-county#platte

[4]National Park Service, United States Department of the Interior. National Register of Historic Places Continuation Sheet. North Fork Historic District, Jefferson County, Colorado. http://www.historycolorado.org/sites/default/files/files/OAHP/NRSR/5JF4449.pdf

industries including ranching, agriculture, and tourism. By the 1890s, rail tourism boosted the local economies and the North Fork area became a popular summer resort. Structures that remain in the area include a mix of wood frame, log and masonry construction.

The original nomination document established 1878-1938 as the overall district period of significance. Areas of significance were indicated for agriculture, commerce, transportation and recreation/tourism. Additional documentation filed sometime later reiterated the importance of the areas of significance for agriculture, transportation and entertainment/recreation, but added industry for the the important extractive activities that occurred in the district. The beginning date for the period of significance was kept at 1878 but the end date was extended to 1957. The period of significance begins with the construction of the railroad through the Platte Canyon and ends at a somewhat arbitrary mid-50s date of 1957, through which the district was significant for entertainment/recreation.

5.2.2 Estabrook Historic District (Site Number 80000919)[5,6,7]

The Estabrook Historic District, listed on the National Register of Historic Places in 1980, runs through the Project Area Boundaries. It is located a few miles southeast of Bailey on the North Fork of the South Platte River. The boundaries are generally formed by high hills or rock walls, particularly to the east. The district follows the river from Insmont Hill to the central part of the district where it joins with Craig Creek coming up from the south. It continues to follow the river as it flows to the east into the narrow, high walled Waterton canyon.

The nomination document established 1873 to the present as the overall district period of significance. Areas of significance were indicated for architecture and commerce, although the statement of significance also discusses the importance of transportation and tourism.

The Estabrook Historic District is significant for its association with the Denver, South Park & Pacific Railway and the tourist industry that developed along the line. The District includes a rustic style complex with numerous buildings and structures including parts of an old roadbed that is believed to be the last of the Denver, South Park & Pacific Railroad. There is also a small railroad bridge that is possibly the only original bridge remaining from the line.

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[5] http://www.nationalregisterofhistoricplaces.com/co/park/districts.html

[6] http://www.parkco.us/index.aspx?NID=386

[7] National Park Service, United States Department of the Interior, National Register of Historic Places Inventory - Nomination Form. April 15, 1980. Accessed February 10, 2015. http://pdfhost.focus.nps.gov/docs/NRHP/Text/80000919.pdf

The district is also significant for its association with some of the State of Colorado's most important pioneers and its fine architectural features. Estabrook was a scenic valley with good fishing and a number of officers, directors and financiers of the railroad began buying land and establishing summer residences. It soon became a popular spot for tourists given its proximity to Denver and special trains run for tourists. The onset of the Great Depression caused a sharp loss in business and in 1937 the train tracks were removed.

Architecturally, the structures in the District represent fine examples of the rustic style, an architectural style developed in the United States in the early 20th century as part of a "back to nature" movement. The rustic style is one of the few indigenous American architectural styles. The buildings of the district are especially notable for their fine craftsmanship, unusual decorative features and excellent condition.

6.0 Analysis of Effects

6.1 Alternative A (No Action)

Only existing and planned activities, previously approved under other NEPA documents, would be implemented as a result of this alternative. These existing and planned activities would comply with federal law(s) and acts as applicable as well as follow the Forest Plan as they apply to Heritage Resources.

6.1.1 Direct and Indirect Effects

There would be no direct or indirect effects from this alternative because no additional disturbance would occur.

6.1.2 Cumulative Effects

Past forest management, particularly fire suppression, has created a forest that is more dense and with higher fuel loadings than would have existed historically. Because of this, there is a risk of the development of large-scale, high intensity wildfires, should a fire start in the area. Many of the identified historic sites are wooden structures that could be destroyed in the event of a fire in the Project Area. Both historic districts are at risk from damage or destruction from wildfire. This alternative has the highest risk of a large-scale, high intensity fire and therefore, the greatest risk of loss of or damage to cultural sites of the alternatives.

6.2 Alternative B (Proposed Action)

This alternative proposes vegetation treatments, prescribed burning and construction of temporary roads in order to reduce forest fuels and the corresponding risk of a large-scale, high intensity wildfire. These planned

activities would comply with federal laws and acts as applicable as well as follow the Forest Plan as they apply to Heritage Resources.

All treatment areas would be required to be evaluated for the existence of prehistoric and historic sites that have been previously identified and recorded and recommended as eligible for, or listed on, the National Register of Historic Places (NRHP). Background research would also assist with developing heritage resource inventory strategy and predict site density. Heritage resource staff would be required to be informed of the proposed action so as to ensure NHPA Section 106 Compliance. This would include possible additional surveys, consultation, project effects determination and protection and /or mitigation measures as determined in consultation with SHPO.

Mitigating the effects of projects on significant sites should be considered on a case-by-case basis and mitigation plans would be implemented, as needed. Decisions about significance and protection would be determined by the Heritage Resource Program Manager, in consultation with the appropriate line officer, interested parties, and the Colorado State OAHP / SHPO. Significant sites would be preserved for scientific investigation or interpretation, and traditional cultural sites or locations would be preserved and not publicized. Specific requirements regarding the presence of significant cultural sites include:

- Implementation may only occur in areas where cultural resources surveys and any necessary avoidance or mitigation measures have been developed in accordance with NHPA requirements.
- Avoid or mitigate known or discovered sites that are eligible for nomination or listed on the National Register of Historic Places.
- Proposed project activities would be required to comply with Federal law(s), the National Historic Preservation Act (NHPA), as amended, other Acts as applicable, and the Forest Plan.
- If a site is located, recorded and recommended eligible for listing or nomination to the NRHP, the impacts to the site would be required to be evaluated. If there could be adverse effects due to the proposed project activities, the site would be mitigated through avoidance or Memorandum Of Agreement (MOA) with the State Office of Archaeology and Historic Preservation (OAHP/SHPO) prior to any site activities.
- Damage to surface and subsurface deposits at significant archeological properties would be required to be negligible to non-existent. If located or identified, the boundaries of NRHP eligible or listed sites would be identified for protection from project activities.
- Standing buildings and other cultural properties, if identified, with structural components would be required to be protected from damage by proposed activities. Heavy equipment employed during project

activities have the potential to directly or indirectly affect cultural resource. Sites within this category would be flagged prior to project implementation and monitored during and after proposed activities.

- The locations of sensitive archeological resources would be required to be considered when designing proposed vegetation management, prescribed burning and related activities. Activities that could impact archeological resources include support facilities needed for the implementation of the proposed vegetation treatments. These facilities may include heavy equipment staging areas, modification and reroute of existing access roads, temporary roads, and pre-operation activities. The planning process for developing treatment areas includes provisions for the identification and protection of significant heritage sites.
- Traditional cultural properties, including culturally peeled trees and directional trees and traditional areas are to be protected during planning, implementation, and related activities. In cases where the local scenery and setting is an integral contributor to the significance of a cultural property, the proposed activity should be designed so that the setting and scenery are preserved.
- Even with surveys of treatment areas prior to implementation of activities on each site, the inadvertent discovery of historic or prehistoric material is possible. If an archaeological discovery is made, all work must stop within 100 feet and the South Platte Ranger District Zone Archeologist and Forest Archeologist must be notified.

6.2.1 Direct and Indirect Effects

Implementation of the Crossons-Longview proposed activities have the potential to directly affect cultural resources. Impacts could include surface disturbance, inadvertent damage from heavy equipment, or disturbance from human activity. Both hand thinning and mechanical vegetation treatments could damage existing cultural resources.

Prescribed fire, including pre and post-fire activities, has the potential to affect cultural resources. Heavy equipment for the fire line and hand-constructed lines have the potential to disturb cultural material by affecting the sub-surface stratigraphy and removal or disturbance of surface constituents. Fire, when it is introduced, has the potential to affect historic and prehistoric organic surface material. Fire disturbance is based on fire intensity and duration.

Indirect effects associated with the implementation of Alternative B could include disturbance of archeological sites located just outside of the proposed treatment areas or temporary roads. These effects could be due to activity surrounding staging areas, and access points (roads, temp roads, skid trails) as well as erosion (slope wash, slope destabilization). Therefore a buffer of 50 m (164 ft) outside of the proposed project boundary

would need to be inventoried. Staging areas and access for a proposed treatment area is part of the area of potential effects and would require a Heritage Resource inventory.

The proposed project activities have the potential to directly or indirectly affect cultural resources. However, through compliance through Section 106 of the NHPA, the project would avoid or mitigate adverse effects to cultural resources listed or eligible for listing in the NRHP.

6.2.2 Cumulative Effects

The implementation of Alternative B should result in only negligible loss of archeological soils and the artifacts contained therein. As long as cultural resource surveys have taken place and OAHP/SHPO has been allowed to comment on any related or future resources management projects in the area associated with this EA, this alternative would have minimal cumulative effect to unknown heritage resources and no cumulative effect to known heritage resources due to proposed activities.

Past forest management, particularly fire suppression, has created a forest that is more dense and with higher fuel loadings than would have existed historically. Because of this, there is a risk of the development of large-scale, high intensity wildfires, should a fire start in the area. Many of the identified historic sites are wooden structures that could be destroyed in the event of a fire in the Project Area. Both historic districts are at risk from damage or destruction from fire. This alternative has the highest amount of fuels reduction and therefore the lowest risk of a large, intense wildfire and therefore, the lowest risk of loss of cultural sites due to wildfire of the alternatives.

6.3 ALTERNATIVE C

This alternative proposes vegetation treatments, and prescribed burning in order to reduce forest fuels and the corresponding risk of a large-scale, high intensity wildfire. This alternative does not allow the construction of temporary roads. These planned activities would comply with federal laws and acts as applicable as well as follow the Forest Plan as they apply to Heritage Resources.

The direct effects of Alternative C would be similar to Alternative B but would have a slightly lower potential to have inadvertent impacts to unknown cultural resources. The lower potential effects are due to no temporary roads and a smaller area of vegetation treatments.

The proposed project activities have the potential to directly or indirectly affect cultural resources. However, through compliance through Section 106 of the NHPA, the project would avoid or mitigate adverse effects to cultural resources listed or eligible for listing in the NRHP.

The cumulative effects of Alternative C would be similar to Alternative B, except that due to the lower amount of fuels reduction proposed, this alternative would have a higher risk of loss of cultural sites due to wildfire. However, this risk would be lower than that of Alternative A, the No Action Alternative.

6.4 Short-term Uses and Long-term Productivity

The short-term uses associated with each alternative would not result in a loss of long-term cultural resources. Mitigation measures would protect significant cultural resources. Alternatives B and C would provide a long-term beneficial effect of reducing the risk of loss of cultural resources to wildfire.

6.5 Unavoidable Adverse Effects

Cultural sites that are not eligible to the NRHP would not be protected from project activities. Therefore, for all alternatives, there could be some unavoidable effects such as degradation or destruction to cultural resources that are not NRHP eligible.

6.6 Irreversible and Irretrievable Commitments of Resources

For all alternatives, there would be some irreversible or irretrievable commitment of resources to cultural resources that are not NRHP eligible.

6.7 Other Required Disclosures

None

6.8 Consistency with Forest Plan

All Alternatives including Alternative A (No Action), Alternative B (Proposed Action) and Alternative C are consistent with the Forest Plan.

7. List of Preparers

Name/Title	Role	
US Forest Service – Pike and San Isabel National Forests, Cimarron Comanche National Grassland		
Priscilla M. Riefkohl Guzmán, Pike Zone Archaeologist	Technical Review	
Kris Heiny	Project Management, Reviewer	
Name/Title	**Education/Experience**	**Role**
JW Associates		
Brad Piehl	M.S. Forest Engineering, Oregon State University B.S. Forest Resources, University of Minnesota 28 Years Experience	Project Management
Jessica Wald	M.S. Civil Engineering, University of Colorado B.C.E. Civil Engineering, University of Minnesota 23 Years Experience	Report Author